Thank you for the opportunity to address the committee. Broadband communications is very important for Iowa's future and I feel honored to be able to provide input to expanding broadband across the state.

My name is Fred Eastman. I work with Mercy Health Network's Midwest Rural Telemedicine Consortium. Telemedicine combines aspects of both science and technology, utilizes broadband communications and is a critical component in saving health care dollars and extending access to health care. Telemedicine is a very appropriate topic for this committee.

To disclose my other affiliations, I am currently on the Board of Directors of the Iowa Rural Health Telecommunications Program (IRHTP) and also on the Board of Directors for the Iowa Rural Health Association (IRHA). My comments today do not reflect the opinions of those two organizations.

The Midwest Rural Telemedicine Consortium, or MRTC, is a membership organization including 30 hospitals in Iowa and 2 hospitals in Nebraska. The Consortium was formed in 1994 and began providing telemedicine services using two-way interactive video and audio in 1995. MRTC has taken a broad view in defining telemedicine and includes clinical, educational and administrative services.

Among our first goals was to support Medicare's efforts to research and recommend payment models for telemedicine. Following those early efforts Medicare has recognized and expanded reimbursement for telemedicine, now frequently referred to as telehealth. Many states have legislated coverage for telehealth services. In Iowa, although coverage is not mandated through legislation, Medicare, Wellmark, Medicaid and some other third party payers cover some telemedicine services. On the national front, Medicare has recognized the benefits of telehealth to the point that it covers telehealth services provided in the emergency room and skilled nursing facilities.

Interactive video is the primary reimbursable application. This is where a medical provider visits with a distant patient to render a service, consultation or diagnosis. The patient and provider can hear and see each other over TV or computer screens. Medical imaging and studies, such as x-rays, CTs, MRIs and echocardiograms, may also be sent to a distant specialist to read or interpret, which is also a reimbursable service. These services are conducted between hospitals and require large amounts of telecommunications capacity to deliver the quality and speed demanded. As you might imagine viewing x-rays, etc. takes an incredibly large capacity connection for the image to be read quickly. And, live video requires large capacity connections for smooth video quality and clear pictures and sound.

Other health related electronic communications are rapidly growing. Services such as telepharmacy, e-prescribing, electronic medical records, electronic billing, health information exchange and telemonitoring are becoming more commonplace and have become requirements for doing business. For example, it was reported by Iowa eHealth that last year 60% of physicians sent electronic prescriptions. One-third of all filled prescriptions were sent to pharmacies electronically. New e-prescribing rules should increase these numbers. Telepharmacy tools for controlling and supporting distribution of medications include video verification of medications and remote medication dispensers in the hospital or clinic when no on-site pharmacist is available. There are also remote medication

dispensers for in-the-home use that will alert the patient, using sounds and light, when it is time to take medication and then make the medication available to the patient.

New wireless applications for health care are being announced every day. The U.S. Food & Drug Administration (FDA) released its first ruling on wireless applications - or apps - in September. With the proliferation of cell phones and tablets with apps to enhance their use in health care, the demand for wireless services will increase.

The majority of Iowa hospitals developed a consortium with the Iowa Hospital Association and participated in a 2007 FCC (Federal Communications Commission) funded project that constructed telecommunications fiber right to the door of those 86 hospitals. The Iowa Rural Health Telecommunications Program offered speeds up to 1 Gigabit per second (Gb/sec) to each hospital. It was the only project of the 69 funded that offered that capacity. The others were much slower. In 2010 the FCC announced the national broadband plan, which included the recommendation that large hospitals have access to 1 Gb/sec speeds. So, Iowa has led the way in realizing the powerful need for broadband access to its hospitals.

One of the potential barriers to providing telemedicine services is unnecessary regulation for providing care. For example, some states have legislated a requirement for a physician and patient to meet in-person face-to-face to establish a physician-patient relationship. In many cases this would seem to be an unnecessary delay, especially when specialties are in short supply, health care is delayed and unnecessary travel is involved. I have two anecdotal examples.

First, we had a telemedicine patient that had seen a number of physicians about a condition he had. The other physicians had seen him face-to-face, but were unable to satisfactorily treat his condition. After an initial consultation with another physician via telemedicine he said, “You’re the smartest doctor I ever met and I had to meet you over the TV.” They had created a physician-patient relationship without having a face-to-face meeting.

Second, we had an elderly nursing home patient. This patient was followed during a number of tele-visits to her bedside in the nursing home. The tele-visits took place over a period of weeks. She was extremely frail and bedridden. Transporting her any distance would be detrimental to her. This patient could not communicate. All of the history and medical information had to be gleaned from visiting with care givers, through medical records and through the images on the TV screen. This patient was helped through the use of telemedicine. Would a face-to-face visit with the doctor establish a physician-patient relationship? Would a face-to-face visit with a doctor have been possible or beneficial?

Looking for ways to reduce barriers to health care access via telemedicine, at least two states, Kentucky and Washington, have new programs where a patient can schedule a $35 tele-visit with a medical professional. According to a September 16, 2013 article in The News Tribune: “those in medical distress can consult a board-certified physician or nurse practitioner by phone or via video chat on a smartphone, tablet or personal computer. That medical professional will assess your symptoms, offer advice or prescribe medications to get you on the way back to normal.”

Services such as these are designed to reduce the load on emergency rooms, help cut medical costs and provide rapid access to medical advice and care. New rules aimed at reducing hospital readmissions are also aimed at cutting medical costs. Technology can help in these efforts to offer patients access to medical care in less expensive settings. But, to transport the communication necessary to make these interventions work will require robust high-speed communications, both landline and wireless.

In 2010, I participated on the Telecommunications Sector Committee as part of developing the Infrastructure Strategy for Iowa's Future Economy through the Iowa Department of Economic Development. Expansion of broadband was one of the recommendations that came out of that process, so I am glad to see the Governor has asked this committee to address policy recommendations to increase access, adoption and use of broadband.

When asked for my perspective after attending some of our committee sessions I wrote: Available high-speed telecommunications alternatives do not meet current needs, let alone future needs. It is currently very difficult to acquire high-speed telecommunications access, for both business customers and individual customers. There is not enough cooperation between the telecommunications companies to meet the demand of large (and some smaller) projects. Groups of users get frustrated and design and develop their own networks to do the current job. This creates interoperability issues, limits future capacity and redundancy and further fragments the focus on developing ubiquitous access. Wireless communications are inconsistent. Because they will become more important in the future, a strong program to improve wireless strength and access is required. Wireless requires a good backbone to carry the long haul signals making the fiber infrastructure important to build, improve and maintain.

Others on the committee voiced similar concerns. There were many stories of problems getting the needed communications capacity. There were also stories of having multiple vendors running telecommunications lines by a premise without the ability to connect to the cabling or to easily access the duplicated services.

The first recommendation of the committee was, "The infrastructure needs to be a common, unified backbone that supports the public interest, is a public-private partnership that includes mutual benefits, and is built by consortiums."

Each business or home in Iowa needs to have high-speed telecommunications fiber. I also want to see reliable high-speed wireless communications across the state. Services provided on either mode provided need to be seamless, compatible, redundant and affordable. We need patients to be able to get healthcare access from anywhere in the state. We need medical providers to be able to conduct health services from wherever appropriate. We need our health care workers to participate in educational offerings from work or at home.

I recommend that the committee look for ways that private and public entities can work together to access funding, reduce duplication of effort and work toward mutually beneficial broadband services. Working through consortia could make projects more manageable in size and more easily funded. Coordination at the state level would help assure compatibility, reliability and reduce the likelihood for duplication of effort.

Iowa Rural Health Telecommunications Program (IRHTP) is an example of this approach. IRHTP is a big step forward for Iowa hospitals. Partners include the Iowa Hospital Association, Iowa Communications Network, University of Iowa Medical Center, Mercy Health Network and other hospital organizations. The public/privately funded project utilized the state fiber optic network and expanded it to 86 hospitals.

It is not yet the "unified backbone" that the Telecommunications Sector Committee envisioned. Every hospital needs broadband access. Every clinic needs broadband access. Every nursing home needs broadband access. Every pharmacy needs broadband access. Every home needs broadband access.

Health systems are integrating their services to provide a continuum of care. Goals are to: improve patients' health, reduce emergency room visits, shorten the length of hospital stays, reduce hospital readmissions and lower health care costs. The primary care physician in the clinic office is the driver of the care. Accountable Care Organizations will provide the health care team, working together to provide for the patient's needs. The primary care physician will call on those in the team when a consultation or specialized care is needed. All of the team will need to be able to communicate and have access to parts of the patient's medical record, including images. Broadband is needed to move this information rapidly and efficiently at every level for the team to provide the best care.

Information stored in the electronic medical record is the key. The Iowa Health Information Network (IHIN) was developed to meet this need. IHIN is a way for all participating health providers to securely share and exchange patient medical information. It will connect all of the disparate electronic health records to allow access to medical records and images. This will help physicians treat patients by collecting, in one place, all of the information needed when seeing the patient. IHIN is now connected to Illinois, Missouri and Kansas and will connect with other states in the future.

Expanded broadband services for Iowa will provide better access to health care for our citizens and prepare our state for the communications demands of future. Policies developed should be mindful of rapidly changing technology and the inability of policy to foresee the next big thing.

(The following text was provided by Mr. Eastman in a follow-up email sent to Connect Iowa on 10-11-13.)

One thing I should have mentioned yesterday that is a concern for healthcare broadband is the variation in upload and download speeds. For home use where you may expect to download movies and send some email, a higher download versus upload speed may make sense. Some services are obviously delivered on this basis with this type of use in mind. When using interactive video the flow of data needs to be as consistent as possible. Medical data flowing both ways uses a lot of bandwidth. Healthcare facilities such as hospitals and clinics will both generate and download huge amounts of data. And, if the upload speed is slow, not only would the video quality suffer, but the efficiency of sending images or receiving reports will suffer. The more healthcare is able to be pushed to the home or to wireless the higher the risk that the upload speed will cause issues. Another issue would be quality of service. Can the service available prioritize medical data over downloading a movie?